| | | DISCLOSURE CIT | ATION | Docket Number (Optional) HUV-020.06 (19787-2006) Applicant | | | Application Number 10/615,501 | | | |
|--------------|----------------------|---|---|--|-------------------------|-------------|-------------------------------|----------------|----------|--|
| (L | lse sevei | ral sheets if necessary) | j | Jacobsen et al. Filing Date | | Group | Art Unit | | | |
| | | | | July 7, 2003 | LINGURATURO | | Assigned | | | |
| EXAMINER | | | | U.S. PATENT DOC | UMENIS | | | FILING | DATE | |
| INITIAL | | | DATE | NAME | CLA | ASS | SUBCLASS | IF APPRO | | |
| OFF | 48 | 3,868,401 | 02/197 | 5 Aratani et a | 1. 26 | 50 | 468 | | | |
| 710 | MAB Z | 4,151,195 | 04/197 | 9 Warnant et | al. 26 | 50 . | 465 | | | |
| 00 | 100 | 4,471,130 | 09/1984 | 4 Katsuki eta | l. 54 | 9 | 523 | | | |
| ENT & TRAS | AD | 4,538,003 | 08/198 | 5 Tam . | 56 | 58 | 656 | | | |
| | AE | 4,565,845 | 01/1986 | 6 Inoue et al | . 52 | .5 | 25 | | | |
| | AF | 4,663,467 | 05/198 | 7 Kruper, Jr. et | al. 54 | 9 | 229 | | | |
| | AG | 4,822,899 | 04/1989 | 9 Grove et a | . 54 | 9 | 533 | | | |
| | АН | 4,870,208 | 09/1989 | 9 Chan et al | . 56 | 2 | 579 | | | |
| | AI | 4,885,376 | 12/1989 | 9 Verkade | 55 | 6 | 18 | | | |
| V | AJ 4,594,439 06/198 | | 06/1986 | 6 Katsuki et a | 1. 54 | 9 | 523 | | | |
| 77P | AK | 4,965,364 | 10/1990 | 0 Marko et a | J. 54 | 6 | 134 | | | |
| <u> </u> | | | F | OREIGN PATENT D | OCUMENTS | | | | | |
| | DOCUMENT NUMBER DATE | | | COUNTRY | CLA | SS | SUBCLASS | Transla YES | ation NO | |
| FTP | AL | EP 0 342 615 | Nov. 89 | 9 EPO | | | | х | | |
| 1 | АМ | WO 91/14694 | Oct. 91 | I PCT | | | | х | | |
| | AN | GB 2 244 055 A | 20 Nov. | 91 PCT | | | | | х | |
| | AO | WO 93/03838 | Mar. 93 | 3 PCT | | | | X | | |
| \downarrow | AP | WO 96/28402 | 19 Sept. | 96 PCT | | | | | x | |
| FTP | AQ | P9500057 | 05-19 | 97 HU | _ | | | | х | |
| | | ОТ | HER DO | CUMENTS | (Includi | ng Autho | r, Title, Date, Per | tinent Pages | Eic.) | |
| +1P +1P | AR | Epoxydation of v ₁ 8 Chem. Int Ed, Eng Adolfsson, H. et al | 5-Unsatura 1 33(10):1 ." Chiral L | β-Hydroperoxy Alcohols Anted α, β-Diols: A Direct | Diastereoselective Syn | thesis C | Of Opoxiy Dio | ls", Angev | v | |
| +1P | 1 7 | Agarwal, D. et al., Chemistry 31A: 78 | | poxidation Using Iron (III | Schiff Base Comple | exes A | s Catalyst ", Ir | ıdian Journ | nal of | |
| EXAMINER | 1 | Fronk T. F | owers | | DATE CONSIDERED 5/14/04 | | | | | |
| EXAMINER: | | | | or not citation is in conforman | | | | if not in | | |
| | | | | s form with next communication | | | - | | | |

FILING DATE

IF APPROPRIATE

Form PTO-1449 Docket Number (Optional) **Application Number** HUV-020.06 (19787-2006) 10/615,501 INFORMATION DISCLOSURE CITATION Applicant IN AN APPLICATION Jacobsen et al. (Use several sheets if necessary) Filing Date Group Art Unit July 7, 2003 To be Assigned **U.S. PATENT DOCUMENTS EXAMINER** NAME DOCUMENT NUMBER DATE **CLASS** SUBCLASS INITIAL 5,093,491 03/1992 Ellis, Jr. et al. 540 135 ΑU 5,126,494 06/1992 Gilheany et al. 568 807 Burk 5,250,731 10/1993 564 150 5,254,704 10/1993 Takano et al. 549 552 PATE THADEN 5,258,553 11/1993 Burk 568 12 AY 5,296,595 03/1994 540 200 Dolye AZ 5,310,956 05/1994 Takano et al. 549 529 BA 5,312,957 05/1994 Casalnuovo et al. 558 410 BB 5,321,143 06/1994 Sharpeless et al. 549 34 BC 5,352,814 10/1994 Katsuki et al. 50 556 BD 5,360,938 11/1994 Babin et al. 449 568 BE 5,665,890 09/1997 230 Jacobsen et al. 549 BF 145 5,929,232 07/1999 Jacobsen et al. 540 BG07/2001 6,262,278 Jacobsen et al. 549 230 BH 6,448,414 09/2002 Jacobsen et al. 549 230 **OTHER DOCUMENTS** (Including Author, Title, Date, Pertinent Pages Etc.) Barili, P. et al., "Regio- and Stereochemistry Of The Acid Catalyzed And Of a Highly Enantioselective Enzymatic Hydrolysis of Some Epoxyterahydrofurans", Tetrahedron 49(28): 6263-6276 (1993).

Brandes, B. and E. Jocobsen, "Highly Enantioselective, Catalytic Epoxidation Of Trisubstituted Olefins", J. of Am. Chem. Soc. 59: 4378-4380 (1994). ВК Chang, S. et al., "Effect of Chiral Quaternary Ammonium Salts On (Salen) Mn-Catalyzed Epoxidation Of Cis-Olefins. A Highly Enantioselective, Catalytic Route to Trans-Epoxides" J. Am. Chem. Soc. 116 (15): 6937-6938 (1994).Chen, X. et al., "Microbiological Transformations 27. The First Examples for Preparative- Scale Enantioselective or Diastereoselective Epoxide Hydrolyses Using Microorganisms. An Unequivocal Access to All Four Bisabolol BM Stereoisomers", J. of Am. Chem. Soc. 58(20): 5528-5532 (1993). **EXAMINER** DATE CONSIDERED

EXAMINER: Initial if citation considered, whether or not citation is in conformance with MPEP § 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to the applicant.

Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

5/14/04

એ

| INFORMATION DISCLOSURE CITATION | | N DISCLOSUPE CITATIO | Docket Number (Optional) HUV-020.06 (19787-2006) | | Application Number 10/615,501 | | | |
|--|---|----------------------|---|--|---|---|--|--|
| INFORMATION DISCLOSURE CITATION IN AN APPLICATION | | NAPPLICATION | Applicant Jacobsen et al. | | | | | |
| | (Us | e seve | eral sheets if necessary) | Filing Date | | Group Art Unit | | |
| | | | OTHER | July 7, 2003 | | To be Assigned | | |
| | | | | DOCUMENTS | | hy Matallanomhyrins" Science | | |
| Collman, J. et al., "Regiosele 261:1404-1411 (1993). | | | | selective and Enamnosciective | Epoxiciation Catalyzed | by Metalloporphyrms, Science, | | |
| Collman, J. et al., "Enantic | | | Collman, J. et al., "Enant | tioselective Epoxidation Of un | functionalized Olefins | Catalyzed By Threitol-Strapped | | |
| | ADEMARY | во | Manganese Porphyrins", | orphyrins", J. of Am. Chem. Soc. 115:3834-3835 (1993). | | | | |
| 8 1 | ADEM | ВР | • • | n, "Chiral Catalysts For The En Letters 28(44):5233-5236 (19 | | on Of Organometallic Reagents to | | |
| | | BQ | l | Copper (II) Catalysts For Ena | - | f Steric Hindrance In The Design of Reactions(**) Gazzetta Chimica | | |
| | Groves, J. and R. Neumann, BS Spanning Steroidal Metallor Groves, G. and R. Neumann | | | | etric Ring-Opening of Cyclohexene Oxide With Trimethylsilyl Azide In The Presence al Ligand", J. of Organometallic Chemistry 346: C7-C10(1988). | | | |
| | | | | nn, "Regioselective Oxidation lloporphyrins " J. Am. Chem. | * | Phospholipid Vesicles. Membran 989). | | |
| | | | | in, "Membrane-Spanning Steroidal Metalloporphyrins as Site-Selective Catalysts in Chem. Soc. 109:5045-5047 (1987). | | | | |
| | | BU | | | | cal N-Acylaziridines with Areneth c. Chem. Commun. No 23: 2699-2 | | |
| | | BV | , , | mmetric Ring-Opening of Syn Synlett. No 11: 774-776 (1991 | - | h Trimethylsilyl Azide Using Chira | | |
| | ; | вw | • | I-pyrazolyl) Pyridines: The Condine Analogues ", J. of Organ. | _ | Family of Planar Tridentate N3 (1990). | | |
| | Jacobsen, E. et al., "Highly Am. Chem. Soc. 113:7063- | | · · | • | ion Catalysts Derived i | from 1,2- Diaminocyclohexane ", J | | |
| | | BY | | elici, "Kinetic and Equilibrium onyl Complexes", Inorganic C | | entate Chelate Ring -Opening 7(1974). | | |
| | | BZ | | D. "Catalytic Formation of Cyc. Org. Chem. 60:725-727 (1995) | | poxides and Co2 With Chromium | | |
| | V | CA | | en, "Kinetic Resolution of 1,2- xylation", J. Am .Chem. Soc. 1 | • | xide and Related Epoxides Via i). | | |
| 7 | TP . | СВ | • | • | • | ion of [N,N' - Bis(3,5-di-tert- Highly Enantiocelective Epoxidati | | |
| EXA | MINER | 1 | tuna T. Po. | wero | DATE CONSIDERED 5 | 114/04 | | |

| | orm PTO-1449 INFORMATION DISCLOSURE CITATION | | Docket Number (Optional) HUV-020.06 (19787-2006) | Application Number 10/615,501 | | | |
|---|--|--|---|---|--|--|--|
| OTHER DO Leighton, J. et al., "Efficient Catalytic Epoxide Ring-Ope Li, Z. et al., "Asymmetric Al Chem. Soc. 115(12):5326-53 | | | Applicant Jacobsen et al. | | | | |
| | | | Filing Date July 7, 2003 | Group Art Unit To be Assigned | | | |
| | | | | (Including Author, Title, Date, Pertinent Pages Etc.) | | | |
| | | | t Synthesis of (R)-4-((Trimethy | lsily)oxy)-2-Cyclopentenone by Enantioselective nistry vol. 61: No1, pp 389-390 (1996). | | | |
| | | | kene Aziridination With Readily Available Chiral Diimine-Based Catalysts", J. Am. 327 (1993). | | | | |
| RADEME | CE | Marangoni, G. and B. Pitteri "Crystal Structure of Cationic Square Planar Platinum (II) Complexes Containing The Tridentate Chelate Ligand 2,6-Bis(methylthiomethyl)Pyridine ", Polyhdron 12(13):1669-1673 (1993). | | | | | |
| 1 | CF | Martinez, L. et al., "Highly E Am. Chem. Soc. 117:5897-5 | | of Epoxides Catalyzed by (Salen) Cr(III) Complexes", | | | |
| Maruoka, K. et al., "An Ef 5607-5610 (1989). | | | icient, Catalytic Procedure For Epoxide Rearrangement", Tetrahedron Letters 30(41): | | | | |
| | СН | Maruyama, K. et al., "Cobale Kinet. Catal. Lett. 45(2): 165 | | ed Solvolytic Ring Opening of Epoxy Compounds", Re | | | |
| | CI | Narasaka, K. "Chiral Lewis | Acids In Catalytic Asymmetric | c Reactions", Synthesis, pp 1-11 (January 1991). | | | |
| | Cì | Nugent, W. et al.," Beyond N (1993). | Nature's Chiral Pool: Enantiosel | lective Catalysis In Industry", Science 259:479-483 | | | |
| | СК | | | Addition of Azide to Meso Epoxides", J. Am. Chem. | | | |
| | CL | | v, "Enantioselective Synthesis of Sec-Allylalcohols by Catalytic Asymmetric Addition es", Tetrahedron Letters, 29(44): 5645-5648 (1988). | | | | |
| | | | of Chiral Square Planar Cobalt (III) Complexes and Catalytic Asymmetric Epoxidation of Chem. Soc. Perkin Trans. 2, Issue 1: 353-359 (1990). | | | | |
| | CN | Palucki, M. et al., "Highly E. 9333-9334 (1994). | nantioselective, Low-Temperate | ure Epoxidation of Styrene", J. Am. Chem. Soc.116: | | | |
| | со | Palucki, A. et al., "Asymmet Tetrahedron Letters, 33 (47): | | H202 Catalyzed By (Salen) Mn (III) Complexes", | | | |
| +1° | СР | | | -Aryloxy Alcohols: Kinetic Resolution of Terminal henols", J. Am. Chem. Soc. 121: 6086-6087 (1999). | | | |
| EXAMINER | | | r | DATE CONSIDERED | | | |
| | | Flora T. Powe | | 5/14/04 | | | |

| Form PT | _ | ON DISCLOSURE CITATION | Docket Number (Optional) HUV-020.06 (19787-2006) | Application Number 10/615,501 | | | | | |
|---------|----------|--|--|--|--|--|--|--|--|
| | IN | AN APPLICATION several sheets if necessary) | Applicant Jacobsen et al. | | | | | | |
| | (0200 | over an executive processing) | Filing Date July 7, 2003 | Group Art Unit To be Assigned | | | | | |
| 10 | Ē | OTHER DO | OCUMENTS | (Including Author, Title, Date, Pertinent Pages Etc.) | | | | | |
| 1, | 7 7003 | | Design of Mn-Salen Catalyst 2: | Highly Enantioselective Epoxidation of Conjugated cis | | | | | |
| SPENT 8 | TRADEMAR | Prochiral and Chiral Recogn | Schurig, V. and F. Betschinger, "Metal-Mediated Enantioselective Access to Unfunctionalized Allphatic Oxiranes: Prochiral and Chiral Recognition", Chem. Rev. 92:873-888 (1992). | | | | | | |
| | C | _ | idation of Olefins With Cationi J. Am. Chem. Soc. 108:2309-2 | c (Salen) Mn III Complexes. The Modulation of Catalytic 320 (1986). | | | | | |
| | c | Stinson, S. "Chiral Drugs" | Chemical and Chemical Engineering News, pp 46-79 (September 28, 1992). | | | | | | |
| | С | Tokunaga et al., "Asymmet Cu Catalytic Hydrolysis", Scien | - | ient Kinetic Resolution of Terminal Epoxides by Means of | | | | | |
| | C | Ward, R. "Non-Enzymatic Assoc. Rev. 19:1-19 (1990). | Asymmetric Transformations In | nvolving Symmetrical Bifunctional Compounds", Chem. | | | | | |
| | С | w Woolley, P. "Models For M | etal Iron Function In Carbonic | Anhydrase", Nature, 258:677-682 (1975). | | | | | |
| | С | | I-Tartrates Catalyzed Asymmetral Society of Japan 61: 1213-12 | ric Ring Opening Of Oxiranes With Various 220 (1988). | | | | | |
| | С | | elective Epoxidation Of Unfundation Soc. 112: 2801-2803 (1990). | ctionalized Olefins Catalyzed By (Selen)manganese | | | | | |
| | C | | "asymmetric Olefin Epoxidational Complexes", J. of Org. Cl | on With Sodium Hypochlorite Catalyzed by Easily nem. 56:2296-2298 (1991). | | | | | |
| | D | International Search Report | completed November 18 1999 | and mailed December 12, 1999. | | | | | |
| 7 | | International Search Report | completed 17 July 1996 and ma | ailed 25 July 1996. | | | | | |
| | | | | | | | | | |
| EXAM | IINER | Fiona T. Pou | iero | 5/14/04 | | | | | |
| | | nitial if citation considered, whether I not considered. Include copy of the | | vith MPEP § 609; Draw line through citation if not in to the applicant. | | | | | |